IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
(Attorney Docket № 15625US02)

In the Application of:

Min Chuin Hoo, et al.

Serial № 10/810,408

Filed: March 26, 2004

For: METHOD AND SYSTEM FOR ANTENNA SELECTION DIVERSITY WITH MINIMUM THRESHOLD

Examiner: Jaison Joseph

Group Art Unit: 2611

Confirmation № 8918

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APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

This is an appeal from an Office Action dated September 2, 2009 ("Final Office Action"), in which claims 1-46 were finally rejected. The Appellant respectfully requests that the Board of Patent Appeals and Interferences ("Board") reverses the final rejection of claims 1-46 of the present application. The Appellant notes that this Appeal Brief is timely filed within the period for reply that ends on February 22, 2010.

REAL PARTY IN INTEREST
(37 C.F.R. § 41.37(c)(1)(i))

Broadcom Corporation, a corporation organized under the laws of the state of California, and having a place of business at 5300 California Avenue, Irvine, California 92617, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment recorded at Reel 015597, Frame 0442 in the PTO Assignment Search room.

RELATED APPEALS AND INTERFERENCES
(37 C.F.R. § 41.37(c)(1)(ii))

The Appellant is unaware of any related appeals or interferences.

STATUS OF THE CLAIMS
(37 C.F.R. § 41.37(c)(1)(iii))

The present application includes pending claims 1-46, all of which stand rejected. Claims 1, 3, 5-7, 15, 17, 19-23, 28, 31-32, 34, 36-40, 42, and 44-46 have been rejected under 35 U.S.C. § 102(b) as being anticipated by USP 6456675 ("Wagner"). Claims 2, 4, 16, 18, 33, 35, 39, 41, and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7245678 ("Tanaka"). Claims 23 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USPP 2005/0018634 ("Mantha"). Claims 8, 10, 12-14, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7049933 ("Koerner"). Claims 9 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over

Wagner in view of Tanaka and Koerner. Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Mantha and Koerner. Appellant identifies claims 1-46 as the claims that are being appealed. The text of the pending claims is provided in the Claims Appendix.

STATUS OF AMENDMENTS (37 C.F.R. § 41.37(c)(1)(iv))

The Appellant has not amended any claims subsequent to the final rejection of claims 1-46 mailed on September 2, 2009.

SUMMARY OF CLAIMED SUBJECT MATTER (37 C.F.R. § 41.37(c)(1)(v))

Independent claim 1 recites the following:

A method for processing signals in a communication system, the method comprising:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths[1];

[1] *See* present specification at, e.g., page 4, lines 2-5; Fig. 6, box 601; Fig. 1A and p. 10, line 13 – p. 11, line 11.

assigning a threshold signal quality metric for the plurality of signal paths[2]; and

discarding a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric[3].

Independent claim 8 recites the following:

A machine-readable storage having stored thereon, a computer program having at least one code section for processing signals in a communication system, the at least one code section being executable by a machine for causing the machine to perform steps comprising[4]:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths[5];

assigning a threshold signal quality metric for the plurality of signal paths[6]; and

discarding a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric[7].

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[2] *See id.* at, e.g., p. 4, lines 5-6; Fig. 6, box 603.
[3] *See id.* at, e.g., p. 4, lines 6-8; Fig. 6, boxes 605-607.
[4] *See id.* at, e.g., p. 4, lines 17-20.
[5] *See id.* at, e.g., page 4, lines 4-5; Fig. 6, box 601; Fig. 1A and p. 10, line 13 – p. 11, line 11.
[6] *See id.* at, e.g., p. 4, lines 5-6; Fig. 6, box 603.
[7] *See id.* at, e.g., p. 4, lines 6-8; Fig. 6, boxes 605-607.

Independent claim 15 recites the following:

A system for processing signals in a communication system, the system comprising:

at least one processor[8] that determines a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths[9];

the at least one processor assigns a threshold signal quality metric for the plurality of signal paths[10]; and

the at least one processor discards a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric[11].

Independent claim 31 recites the following:

A method for processing signals in a communication system, the method comprising:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths[12];

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[8] For example, processor 106 in Figs. 1A-1B.
[9] *See id.* at, e.g., page 4, lines 21-23; Fig. 6, box 601; Fig. 1A and p. 10, line 13 – p. 11, line 11.
[10] *See id.* at, e.g., p. 4, lines 23-24; Fig. 6, box 603.
[11] *See id.* at, e.g., p. 4, lines 24-26; Fig. 6, boxes 605-607.
[12] *See id.* at, e.g., page 4, lines 2-5; Fig. 6, box 601; Fig. 1A and p. 10, line 13 – p. 11, line 11.

assigning a threshold signal quality metric for the plurality of signal paths[13]; and

selecting a target signal path from said plurality of signal paths, for receiving the signals, based on said determined signal quality metric for said plurality of signal paths and said threshold signal quality metric[14].

Independent claim 39 recites the following:

A system for processing signals in a communication system, the system comprising:

at least one processor[15] that determines a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths[16];

said at least one processor assigns a threshold signal quality metric for the plurality of signal paths[17]; and

said at least one processor selects a target signal path from said plurality of signal paths, for receiving the signals, based on said determined signal quality metric for said plurality of signal paths and said threshold signal quality metric[18].

[13] *See id.* at, e.g., p. 4, lines 5-6; Fig. 6, box 603.
[14] *See id.* at, e.g., FIGS. 1A-1B; p. 11, line 3 – p. 12, line 15.
[15] For example, processor 106 in Figs. 1A-1B.
[16] *See id.* at, e.g., page 4, lines 21-23; Fig. 6, box 601; Fig. 1A and p. 10, line 13 – p. 11, line 11.
[17] *See id.* at, e.g., p. 4, lines 5-6; Fig. 6, box 603.
[18] *See id.* at, e.g., FIGS. 1A-1B; p. 11, line 3 – p. 12, line 15.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
(37 C.F.R. § 41.37(c)(1)(vi))

Claims 1, 3, 5-7, 15, 17, 19-23, 28, 31-32, 34, 36-40, 42, and 44-46 have been rejected under 35 U.S.C. § 102(b) as being anticipated by USP 6456675 ("Wagner"). Claims 2, 4, 16, 18, 33, 35, 39, 41, and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7245678 ("Tanaka"). Claims 23 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USPP 2005/0018634 ("Mantha"). Claims 8, 10, 12-14, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7049933 ("Koerner"). Claims 9 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Tanaka and Koerner. Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Mantha and Koerner.

ARGUMENT
(37 C.F.R. § 41.37(c)(1)(vii))

In the Final Office Action, claims 1, 3, 5-7, 15, 17, 19-23, 28, 31, 32, 34, 36-40, 42 and 44-46 are rejected under 35 U.S.C. § 102(b) as being anticipated by USP 6,456,675 ("Wagner"). Claims 2, 4, 16, 18, 33, 35, 39, 41 and 43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7,245,678 ("Tanaka"). Claims 23 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USPP 2005/0018634 ("Mantha"). Claims 8, 10, 12-14 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of USP 7,049,933 ("Koerner"). Claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Tanaka and further in view of Koerner. Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Mantha and further in view of Koerner. Claims 24, 27 and 30 are objected to as being dependent upon a rejected base claim.

I. Wagner Does Not Anticipate Claims 1, 3, 5-7, 15, 17, 19-23, 28, 31-32, 34, 36-40, 42, and 44-46

A1. Rejection of Claims 1, 15, 31, 32, and 39

With regard to the rejection of independent claim 1 under Wagner, the Appellant submits that Wagner does not disclose or suggest at least the limitation of "determining a signal quality metric for a plurality of signal paths, wherein one or more of said

plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths," as recited by the Appellant in independent claim 1.

The Final Office Action states the following:

> Regarding claim 1, Wagner et al. teach a method for processing signals in a communication system (see abstract), the method comprising: *determining a signal quality metric for each of a plurality of signal paths (see abstract lines 1 - 3), wherein one or more of said plurality of signal paths is selected based on stored information for preceding frames, the preceding frames received via each of the plurality of signal paths (see abstract and column 18, lines 3 - 21)*; assigning a threshold signal quality metric for the plurality of signal paths (see abstract and column 18, lines 3 - 21); and discarding a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric (see abstract and column 18, lines 3 - 21).

See the Final Office Action at pages 4-5 (emphasis added). The Appellant respectfully disagrees. Wagner discloses that the quality of a channel for each of a plurality of receive antennas is determined by **continuously** updating quality metrics based on both test and payload data. *See* Wagner at Abstract. More specifically, Wagner calculates the quality metric for any given signal source by using **measurements of the currently received test and payload data**. *See id.* at col. 2, lines 33-61. This is further illustrated in Wagner's Fig. 4, which is a generalized method for selecting an antenna. Referring to Fig. 4, the quality metrics Q are being **continuously** determined and assessed for the different receiving antennas (see the continuous loop of steps 402-410, and col. 6, lines 15-50). Wagner does not utilize any

stored information relating to preceding frames. In fact, as explained above, Wagner makes a continuous determination of the quality metrics using currently received test and payload data, and does not even utilize any information relating to previously received or preceding frames.

Therefore, the Appellant maintains that Wagner does not disclose or suggest at least the limitation of "determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths," as recited by the Appellant in independent claim 1.

Accordingly, independent claim 1 is not anticipated by Wagner and is allowable. Claims 15, 31, 32 and 39 are similar in many respects to the method disclosed in independent claim 1, and have been rejected based on the rational of claim 1. Therefore, the Appellant submits that claims 15, 31, 32, and 39 are also allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

A2. EXAMINER'S RESPONSE TO ARGUMENTS

The Examiner states the following at page 2 of the Final Office Action:

> Regarding claim1, applicant argue, "Wagner does not disclose or suggest at least the limitation of "determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal

> paths," as recited by the Applicant in independent claim 1." However the Office respectfully disagrees. Wagner clearly teach "selecting the payload signal source based at least upon a previous quality metric corresponding to a previous payload signal source comparing unfavorably with a threshold" (see **column 18, lines 18-21**). Wagner further teach "the control and signal processing unit 208 preferably provides control of the antenna switch 202" (see **column 4, lines 50-51**) and "The control and signal processing unit 208 ... and operational data stored in volatile or nonvolatile digital storage devices or both as known in the art" (see **column 4, lines 63-65**) Wagner further teach "quality metric, Q(T), of the test antenna is updated and stored at step 504" (see **column 7, lines 39-40**). Therefore Wagner clearly teach the limitations of "one or more of said plurality of signal paths is selected based on stored information related to preceding frames". (emphasis added)

The Applicant respectfully disagrees. Wagner, at col. 18, lines 18-21, discloses that the step of selecting a payload signal source includes selecting the payload signal source based upon a previous quality metric corresponding to a previous payload signal source. Wagner, at best, discloses selecting a signal source based on a single quality metric for a single previous source. There is no disclosure that a signal path is selected based on **stored** information related to preceding frames, where the stored information is received via **each of the plurality of signal paths**.

Wagner, at col. 4, lines 50-51 and 63-65, simply discloses that the antenna switch 202 can be controlled by the processing unit 208 (e.g., a CPU), which can utilize volatile and/or non-volatile memory.

Wagner, at col. 7, lines 39-40, describes step 504 from Fig. 5. Initially, the Applicant points out that Wagner's FIG. 5 relates to a method of selecting an antenna using packetized data transmissions, in which the test data packets are transmitted before each payload packet. The portion cited by the Examiner (col. 7, lines 39-40)

simply states that the quality metric Q(T) (based on the test packet) is updated and stored. In fact, the quality metrics are being continuously updated (i.e., the most recent metric is stored for each test packet and **only** the most recent metric is used in the antenna determination). Ultimately, at step 512, a new payload antenna P is selected based on the **current** quality metric value. In this regard, the fact remains that **Wagner's antenna selection (as disclosed in Fig. 5 and elsewhere) is based only on a current quality metric value for the specific antenna, and it is not based on stored information related to preceding frames, where the stored information is received via each of the plurality of signal paths**.

B. Rejection of Dependent Claims 3, 17, 34, and 42

Claims 3, 17, 34, and 42 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 3, 17, 34, and 42 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

With regard to the rejection of dependent claim 3 under Wagner, the Appellant submits that Wagner does not disclose or suggest at least the limitation of " assigning a fixed threshold signal quality metric for each of the plurality of signal paths," as recited by the Appellant in dependent claim 3.

The Final Office Action states the following:

> Regarding claim 3, which inherits the limitations of claim 1, Wagner et al further teach assigning a fixed threshold signal quality metric for each of the plurality of signal paths (see abstract and column 18, lines 3 - 21).

See Final Office Action at page 5. Wagner, at col. 18, lines 3-21, discloses that the payload signal source is selected based on a comparison of a previous quality metric with "a threshold". In other words, Wagner discloses the use of only a single quality metric, and it does not disclose any assigning of a threshold metric to each of a plurality of signal paths, as recited in Appellant's claim 3. Accordingly, the Appellant submits that claims 3, 17, 34, and 42 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 3, 17, 34, and 42.

C. Rejection of Dependent Claims 5, 19, 36, and 44

Claims 5, 19, 36, and 44 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 5, 19, 36, and 44 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 5, 19, 36, and 44.

D. Rejection of Dependent Claims 6, 20, 37, and 45

Claims 6, 20, 37, and 45 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 6, 20, 37, and 45 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 6, 20, 37, and 45.

E. Rejection of Dependent Claims 7, 21, 38, and 46

Claims 7, 21, 38, and 46 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 7, 21, 38, and 46 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 7, 21, 38, and 46.

F. Rejection of Dependent Claims 22 and 28

Claims 22 and 28 depend on independent claims 1 and 15, respectively. Therefore, the Appellant submits that claims 22 and 28 are allowable over the

references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

With regard to the rejection of dependent claim 22 under Wagner, the Appellant submits that Wagner does not disclose or suggest at least the limitation of "selecting a first of said plurality of signal paths based on said previously stored information related to preceding frames," as recited by the Appellant in dependent claim 22.

The Final Office Action states the following:

> Regarding claim 22, which inherits the limitations of claim 1, Wagner et al. further teach the method further comprising selecting a first of said plurality of signal paths based on said previously stored information for preceding frames (see abstract and column 18, lines 3 - 21).

See Final Office Action at page 6. As previously explained, Wagner, at col. 18, lines 3-21, discloses that the step of selecting a payload signal source includes selecting the payload signal source based upon a previous quality metric corresponding to a previous payload signal source. Wagner, at best, discloses selecting a signal source based on a single quality metric for a single previous source. There is no disclosure that a signal path is selected based on stored information related to preceding frames, where the stored information is received via each of the plurality of signal paths. In this regard, the fact remains that Wagner's antenna selection (as disclosed in Fig. 5 and elsewhere) is based only on a current quality metric value for the specific antenna, and it is not based on stored information related to preceding frames, where the stored information is received via each of the plurality of signal paths. Accordingly, the Appellant submits that claim 22 is allowable over the references cited

in the Final Office Action at least for the above reasons. Claim 28 is similar in many respects to the method disclosed in claim 22, and has been rejected based on the rational of claim 22. Therefore, the Appellant submits that claim 28 is also allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 22.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 22 and 28.

G. Rejection of Dependent Claim 40

Claim 40 depends on independent claim 39. Therefore, the Appellant submits that claim 40 is allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claim 40.

II. The Proposed Combination of Wagner and Tanaka Does Not Render Claims 2, 4, 16, 18, 33, 35, 39, 41 and 43 Unpatentable

A. Rejection of Dependent Claims 2, 16, 33 and 41

Claims 2, 16 and 33 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 2, 16, 33 and 41 are

allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that Wagner in combination with Tanaka does not disclose or suggest at least the limitation of "assigning a different threshold signal quality metric for each of the plurality of signal paths," as recited by the Appellant in claim 2.

With regard to claim 2, the Final Office Action states the following at pages 8-9:

> Regarding claim 2, which inherits the limitations of claim 1, Wagner et al does not expressly teach assigning different threshold to each of the signal paths. However in analogous art, Tanaka teaches assigning a different threshold signal quality metric for each of the plurality of signal paths (see figure 1, 2, 3 and abstract and column 5, lines 16 - 20 and column 7, lines 55 - 65). Therefore it would have been obvious to an ordinary skilled in the art at the time the invention was made to incorporate the teaching of applying different threshold in Wagner. The motivation or suggestion to do so is to have a guaranteed quality for the received and reproduced signal.

The Examiner concedes that Wagner does not disclose the above recitation, and then relies for support on abstract, column 5, lines 16 - 20 and column 7, lines 55 – 65 of Tanaka. Initially, the Appellant points out that Tanaka selects one of antennas 2a and 2b using a switch (see abstract of Tanaka). More specifically, switching between the antennas is performed every time the guard bit section in each frame is received (see Tanaka at col. 2, lines 55-56). In this regard, selection of the antennas is not based on stored information related to preceding frames. Furthermore, Tanaka (including column 5, lines 16 - 20 and column 7, lines 55 – 65) does not disclose any assigning of a threshold signal quality metric for a plurality of signal paths, by virtue of the fact that either antenna 2a or antenna 2b is selected for processing (i.e., there is no

determination of a quality metric with regard to a plurality of antennas or signal paths). Accordingly, the Appellant submits that claims 2, 16, 33 and 41 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 2, 16, 33 and 41.

B. Rejection of Dependent Claims 4, 18, 35 and 43

Claims 4, 18, 35 and 43 depend on independent claims 1, 15, 31 and 39, respectively. Therefore, the Appellant submits that claims 4, 18, 35 and 43 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that Wagner in combination with Tanaka does not disclose or suggest at least the limitation of "dynamically changing the threshold signal quality metric for each of the plurality of signal paths," as recited by the Appellant in claims 4, 18, 35 and 43.

With regard to claim 4, the Final Office Action states the following at page 9:

> Regarding claim 4, which inherits the limitations of claim 1, Tanaka further teaches dynamically changing the threshold signal quality metric for each of the plurality of signal paths (see figure 1, 2, 3 and abstract and column 7, lines 3 - 20 and column 7, lines 55 - 65)

Tanaka selects one of antennas 2a and 2b using a switch (see abstract of Tanaka). More specifically, switching between the antennas is performed every time the guard bit section in each frame is received (see Tanaka at col. 2, lines 55-56). In

this regard, selection of the antennas is not based on stored information related to preceding frames. Furthermore, Tanaka (including column 7, lines 3 - 20 and column 7, lines 55 - 65) does not disclose any dynamic changing of a threshold signal quality metric for a plurality of signal paths, by virtue of the fact that either antenna 2a or antenna 2b is selected for processing (i.e., there is no determination of a quality metric with regard to a plurality of antennas or signal paths, e.g., for both antennas 2a and 2b). Accordingly, the Appellant submits that claims 4, 18, 35 and 43 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 4, 18, 35 and 43.

III. The Proposed Combination of Wagner and Mantha Does Not Render Claims 23 and 29 Unpatentable

A. Rejection of Dependent Claims 23 and 29

Claims 23 and 29 depend on independent claim 15. Therefore, the Appellant submits that claims 23 and 29 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 15. The Appellant also submits that Wagner in combination with Tanaka does not disclose or suggest at least the limitation of "selecting one or more of said plurality of signal paths based on a history of previously selected signal paths," as recited by the Appellant in claims 23 and 29.

With regard to claims 23 and 29, the Final Office Action states the following at page 10:

> Regarding claim 23, which inherits the limitations of claim 1, Wagner et al. does not expressly teach selecting a path based on history of previously selected paths. However in analogous art Mantha et al teach the method further comprising selecting one or more of said plurality of signal paths based on a history of previously selected signal paths (see page 7 right hand column, lines 8 - 12). Therefore it would have been obvious to an ordinary skilled in the art at the time the invention was made to incorporate the teaching of selecting signal path based on the history. The motivation or suggestion to do so is to detect signal accurately".

The Examiner concedes that Wagner does not disclose the above recitation, and then relies for support on claim 30 (page 7) of Mantha. Mantha, at claim 30, discloses that selection of an alternative antenna configuration is made based upon a history of reception qualities achieved from each of the possible antenna configurations. Mantha, however, does not disclose that selecting a signal path is based on a history of previously selected signal paths. In this regard, Mantha performs antenna selection only based on a history of reception qualities, but not on a history of which signal paths were selected. Accordingly, the Appellant submits that claims 23 and 29 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 23 and 29.

IV. The Proposed Combination of Wagner and Koerner Does Not Render Claims 8, 10, 12-14 and 25 Unpatentable

A. Rejection of Claims 8, 10, 12-14 and 25

Claims 10, 12-14 and 25 depend on independent claims 8 and 15, respectively. Therefore, the Appellant submits that claims 8, 10, 12-14 and 25 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claims 8 and 15, respectively.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 8, 10, 12-14 and 25.

V. The Proposed Combination of Wagner, Tanaka and Koerner Does Not Render Claims 9 and 11 Unpatentable

A. Rejection of Dependent Claims 9 and 11

Claims 9 and 11 depend on independent claim 8. Therefore, the Appellant submits that claims 9 and 11 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 8. The Appellant also submits that Wagner in combination with Tanaka and Koerner does not disclose or suggest at least the limitation of "assigning a different threshold signal quality metric for each of the plurality of signal paths," as recited by the Appellant in claim 9.

With regard to claims 9 and 11, the Final Office Action states the following at pages 11-12:

> Regarding claim 9 and 11, Wagner et al in view of Tanaka is cited as explained in the above paragraph. Wagner et al in view of Tanaka does

> not expressly teach the antenna selecting functions is done by a Machine-readable medium having stored instructions stored thereon to perform the cited functions. However, Koerner teach a Machine-readable medium having stored instructions stored thereon to perform selecting at least one signal path (see column 15, lines 39 - 57). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to perform Wagner et al in view of Tanaka method in a machine-readable medium. The motivation or suggestion to do so is to reduce the cost of the receiver.

Claim 9 is similar to claim 2. With regard to claim 2, the Examiner concedes that Wagner does not disclose the above recitation, and then relies for support on abstract, column 5, lines 16 - 20 and column 7, lines 55 – 65 of Tanaka. Initially, the Appellant points out that Tanaka selects one of antennas 2a and 2b using a switch (see abstract of Tanaka). More specifically, switching between the antennas is performed every time the guard bit section in each frame is received (see Tanaka at col. 2, lines 55-56). In this regard, selection of the antennas is not based on stored information related to preceding frames. Furthermore, Tanaka (including column 5, lines 16 - 20 and column 7, lines 55 – 65) does not disclose any assigning of a threshold signal quality metric for a plurality of signal paths, by virtue of the fact that either antenna 2a or antenna 2b is selected for processing (i.e., there is no determination of a quality metric with regard to a plurality of antennas or signal paths). Accordingly, the Appellant submits that claim 9 is allowable over the references cited in the Final Office Action at least for the above reasons.

Claim 11 is similar to claim 4. With regard to claim 11, the Appellant submits that Wagner in combination with Tanaka and Koerner does not disclose or suggest at least

the limitation of dynamically changing the threshold signal quality metric for each of the plurality of signal paths," as recited by the Appellant in claim 11.

With regard to claim 4, the Final Office Action states the following at page 9:

> Regarding claim 4, which inherits the limitations of claim 1, Tanaka further teaches dynamically changing the threshold signal quality metric for each of the plurality of signal paths (see figure 1, 2, 3 and abstract and column 7, lines 3 - 20 and column 7, lines 55 - 65)

Tanaka selects one of antennas 2a and 2b using a switch (see abstract of Tanaka). More specifically, switching between the antennas is performed every time the guard bit section in each frame is received (see Tanaka at col. 2, lines 55-56). In this regard, selection of the antennas is not based on stored information related to preceding frames. Furthermore, Tanaka (including column 7, lines 3 - 20 and column 7, lines 55 - 65) does not disclose any dynamic changing of a threshold signal quality metric for a plurality of signal paths, by virtue of the fact that either antenna 2a or antenna 2b is selected for processing (i.e., there is no determination of a quality metric with regard to a plurality of antennas or signal paths, e.g., for both antennas 2a and 2b). Accordingly, the Appellant submits that claim 11 is allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 9 and 11.

VI. The Proposed Combination of Wagner, Mantha and Koerner Does Not Render Claim 26 Unpatentable

A. Rejection of Dependent Claim 26

Claim 26 depends on independent claim 15. Therefore, the Appellant submits that claim 26 is allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 15. The Appellant also submits that Wagner in combination with Mantha and Koerner does not disclose or suggest at least the limitation of "selecting one or more of said plurality of signal paths based on a history of previously selected signal paths," as recited by the Appellant in claim 26.

With regard to claim 26, the Final Office Action states the following at pages 12:

> Regarding claim 9 and 11 [sic], Wagner et al in view of Mantha et al is cited as explained in the above paragraph. Wagner et al in view of Mantha et al does not expressly teach the antenna selecting functions is done by a Machine-readable medium having stored instructions stored thereon to perform the cited functions. However, Koerner teach a Machine-readable medium having stored instructions stored thereon to perform selecting at least one signal path (see column 15, lines 39 - 57). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to perform Wagner et al in view of Mantha et al method in a machine-readable medium. The motivation or suggestion to do so is to reduce the cost of the receiver.

Claim 26 is simlar to claim 23. With regard to claim 23, the Examiner concedes that Wagner does not disclose the above recitation, and then relies for support on claim 30 (page 7) of Mantha. Mantha, at claim 30, discloses that selection of an alternative antenna configuration is made based upon a history of reception qualities achieved from each of the possible antenna configurations. Mantha, however, does not disclose that selecting a signal path is based on a history of previously selected signal paths. In this

regard, Mantha performs antenna selection only based on a history of reception qualities, but not on a history of which signal paths were selected. Accordingly, the Appellant submits that claim 26 is allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claim 26.

CONCLUSION

For at least the foregoing reasons, the Appellant submits that claims 1-46 are in condition for allowance. Reversal of the Examiner's rejection and issuance of a patent on the application are therefore requested.

The Commissioner is hereby authorized to charge $540 (to cover the Brief on Appeal Fee) and any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Respectfully submitted,

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(OIB)

CLAIMS APPENDIX
(37 C.F.R. § 41.37(c)(1)(viii))

1. A method for processing signals in a communication system, the method comprising:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths;

assigning a threshold signal quality metric for the plurality of signal paths; and

discarding a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric.

2. The method of claim 1, comprising assigning a different threshold signal quality metric for each of the plurality of signal paths.

3. The method of claim 1, comprising assigning a fixed threshold signal quality metric for each of the plurality of signal paths.

4. The method of claim 1, comprising dynamically changing the threshold signal quality metric for each of the plurality of signal paths.

5. The method of claim 1, wherein the signal quality metric comprises at least one of a power level characteristic, a packet error rate characteristic, a bit error rate characteristic, a propagation channel characteristic, and an interference level characteristic.

6. The method of claim 1, wherein at least one of the signal paths comprises an antenna.

7. The method of claim 1, wherein each of the plurality of signal paths comprises at least one of a receive signal path and a transmit signal path.

8. A machine-readable storage having stored thereon, a computer program having at least one code section for processing signals in a communication system, the at least one code section being executable by a machine for causing the machine to perform steps comprising:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths;

assigning a threshold signal quality metric for the plurality of signal paths; and

discarding a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric.

9. The machine-readable storage according to claim 8, comprising code for assigning a different threshold signal quality metric for each of the plurality of signal paths.

10. The machine-readable storage according to claim 8, comprising code for assigning a fixed threshold signal quality metric for each of the plurality of signal paths.

11. The machine-readable storage according to claim 8, comprising code for dynamically changing the threshold signal quality metric for each of the plurality of signal paths.

12. The machine-readable storage according to claim 8, wherein the signal quality metric comprises at least one of a power level characteristic, a packet error rate characteristic, a bit error rate characteristic, a propagation channel characteristic, and an interference level characteristic.

13. The machine-readable storage according to claim 8, wherein at least one of the signal paths comprises an antenna.

14. The machine-readable storage according to claim 8, wherein each of the plurality of signal paths comprises at least one of a receive signal path and a transmit signal path.

15. A system for processing signals in a communication system, the system comprising:

at least one processor that determines a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths;

the at least one processor assigns a threshold signal quality metric for the plurality of signal paths; and

the at least one processor discards a signal path from the plurality of signal paths, if the determined signal quality metric for the signal path does not satisfy the threshold signal quality metric.

16. The system of claim 15, wherein the at least one processor assigns a different threshold signal quality metric for each of the plurality of signal paths.

17. The system of claim 15, wherein the at least one processor assigns a fixed threshold signal quality metric for each of the plurality of signal paths.

18. The system of claim 15, wherein the at least one processor dynamically changes the threshold signal quality metric for each of the plurality of signal paths.

19. The system of claim 15, wherein the signal quality metric comprises at least one of a power level characteristic, a packet error rate characteristic, a bit error rate characteristic, a propagation channel characteristic, and an interference level characteristic.

20. The system of claim 15, wherein at least one of the signal paths comprises an antenna.

21. The system of claim 15, wherein each of the plurality of signal paths comprises at least one of a receive signal path and a transmit signal path.

22. The method according to claim 1, comprising selecting a first of said plurality of signal paths based on said previously stored information related to preceding frames.

23. The method according to claim 1, comprising selecting one or more of said plurality of signal paths based on a history of previously selected signal paths.

24. The method according to claim 1, comprising controlling a gain of a selected one of said plurality of signal paths based on a power coupling factor between said selected one of said plurality of signal paths and a signal path adjacent to said selected one of said plurality of signal path.

25. The machine-readable storage according to claim 8, comprising code for selecting a first of said plurality of signal paths based on said previously stored information related to preceding frames.

26. The machine-readable storage according to claim 8, comprising code for selecting one or more of said plurality of signal paths based on a history of previously selected signal paths.

27. The machine-readable storage according to claim 8, comprising code for controlling a gain of a selected one of said plurality of signal paths based on a power coupling factor between said selected one of said plurality of signal paths and a signal path adjacent to said selected one of said plurality of signal path.

28. The system according to claim 15, wherein the at least one processor selects a first of said plurality of signal paths based on said previously stored information related to preceding frames.

29. The system according to claim 15, wherein the at least one processor selects one or more of said plurality of signal paths based on a history of previously selected signal paths.

30. The system according to claim 15, wherein the at least one processor controls a gain of a selected one of said plurality of signal paths based on a power coupling factor between said selected one of said plurality of signal paths and a signal path adjacent to said selected one of said plurality of signal path.

31. A method for processing signals in a communication system, the method comprising:

determining a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths;

assigning a threshold signal quality metric for the plurality of signal paths; and

selecting a target signal path from said plurality of signal paths, for receiving the signals, based on said determined signal quality metric for said plurality of signal paths and said threshold signal quality metric.

32. The method according to claim 31, comprising discarding a signal path during said selecting of said target signal path, if said determined signal quality metric for said signal path does not satisfy said threshold signal quality metric.

33. The method of claim 31, comprising assigning a different threshold signal quality metric for each of the plurality of signal paths.

34. The method of claim 31, comprising assigning a fixed threshold signal quality metric for each of the plurality of signal paths.

35. The method of claim 31, comprising dynamically changing the threshold signal quality metric for each of the plurality of signal paths.

36. The method of claim 31, wherein the signal quality metric comprises at least one of a power level characteristic, a packet error rate characteristic, a bit error rate characteristic, a propagation channel characteristic, and an interference level characteristic.

37. The method of claim 31, wherein at least one of the signal paths comprises an antenna.

38. The method of claim 31, wherein each of the plurality of signal paths comprises at least one of a receive signal path and a transmit signal path.

39. A system for processing signals in a communication system, the system comprising:

at least one processor that determines a signal quality metric for a plurality of signal paths, wherein one or more of said plurality of signal paths is selected based on stored information related to preceding frames, the stored information received via each of the plurality of signal paths;

said at least one processor assigns a threshold signal quality metric for the plurality of signal paths; and

said at least one processor selects a target signal path from said plurality of signal paths, for receiving the signals, based on said determined signal quality metric for said plurality of signal paths and said threshold signal quality metric.

40. The system according to claim 39, wherein said at least one processor discards a signal path during said selecting of said target signal path, if said determined signal quality metric for said signal path does not satisfy said threshold signal quality metric.

41. The system of claim 39, wherein said at least one processor assigns a different threshold signal quality metric for each of the plurality of signal paths.

42. The system of claim 39, wherein said at least one processor assigns a fixed threshold signal quality metric for each of the plurality of signal paths.

43. The system of claim 39, wherein said at least one processor dynamically changes the threshold signal quality metric for each of the plurality of signal paths.

44. The system of claim 39, wherein the signal quality metric comprises at least one of a power level characteristic, a packet error rate characteristic, a bit error

rate characteristic, a propagation channel characteristic, and an interference level characteristic.

45. The system of claim 39, wherein at least one of the signal paths comprises an antenna.

46. The system of claim 39, wherein each of the plurality of signal paths comprises at least one of a receive signal path and a transmit signal path.

EVIDENCE APPENDIX
(37 C.F.R. § 41.37(c)(1)(ix))

(1) United States Patent No. 5,991,613 ("Euscher), entered into record by the Examiner in the 7/23/2007 Office Action.

(2) United States Patent No. 7,049,933 ("Koerner"), entered into record by the Examiner in the 7/23/2007 Office Action.

(3) United States Patent No. 7,245,678 ("Tanaka"), entered into record by the Examiner in the 10/30/2007 Office Action.

(4) United States Patent No. 6,456,675 ("Wagner"), entered into record by the Examiner in the 2/18/2009 Office Action.

(5) United States Publication No. 2005/0018634 ("Mantha"), entered into record by the Examiner in the 2/18/2009 Office Action.

RELATED PROCEEDINGS APPENDIX
(37 C.F.R. § 41.37(c)(1)(x))

The Appellant is unaware of any related appeals or interferences.